



MAGAZINE

PRICE TWOPENCE

NOVEMBER 1953



The *I.C.I. Magazine* is published for the interest of all who work in I.C.I., and its contents are contributed largely by people in I.C.I. It is edited by Richard Keane and printed at The Kynoch Press, Birmingham, and is published every month by Imperial Chemical Industries Limited, Imperial Chemical House, S.W.1. Telephone: VICToria 4486. The editor is glad to consider articles for publication, and payment will be made for those accepted.

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FRONT COVER: *The Wool Shop*, by Alvar Lauste (Central Agricultural Control)

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BARNACLES AT BRIXHAM

By J. Gordon Cook

Every year barnacle-fouling causes an immense loss to British shipping, running into millions of pounds. To combat this, Paints Division established in 1948 a marine research station at Brixham to learn more about barnacles and how better to protect ships against this menace. The story of this fascinating research is told here for the first time.

BARNACLES," said Dr. Chipperfield, "are strange creatures. Imagine a shrimp that cements its head to the bottom of a boat, builds a hard shell round itself, leaving a hole in the top that can be closed by two pairs of armour-plated doors, and you have a barnacle. Or almost."

Philip Chipperfield is I.C.I.'s barnacle expert, and I had been introduced to him by Dr. J. W. Dorling, who is the Group head in charge of the Paints Division's Marine Research Station at Brixham on the south coast of Devon. We sat in Dr. Dorling's office, surrounded by barnacle shells of all shapes and sizes.

"This is a small barnacle from the tropics," Dorling said, handing me a shell about the size of a small coffee cup. "It was removed from the bottom of a ship in Penang along with thousands of its relatives."

I examined it. The bottom of the shell was flat where it had been fixed to the boat. The sides were built up from plates of shell that sloped inwards towards the top, leaving a hole. It looked like a little volcano.

"I suppose a barnacle is a sort of shell-fish, like a limpet or a mussel," I suggested.

"No," said Chipperfield. "It's a crustacean. That is to say, it's related to shrimps and crabs. But it prefers a sedentary life, and asks for nothing more than to spend its days cemented to a pier or a ship. That's why we're so interested in it here, of course."

Dr. Dorling explained that barnacles are a serious problem to the shipowner. When an unprotected ship has been in service for even a short time it becomes covered with barnacles and other marine animals and weeds below

the water line. The rough surface caused by the shells and other organisms increases the drag of the ship in the water, causing slower voyages and bigger fuel bills. The direct cost of fouling on a single voyage from Cape Town to London for a 7500-ton cargo ship capable of 14 knots has been estimated at more than £1200. For the British merchant fleet as a whole the barnacle bill runs into millions of pounds a year.

To cut down fouling as much as possible, shipowners paint their ships regularly with special anti-fouling paints. And the study of anti-fouling compositions is one of the main jobs of Paints Division's Marine Research Station.

The station was set up with the object of developing improved underwater paints for ships, both anti-fouling and anti-corrosive; for corrosion is the other main worry of shipowners. Normal commercial anti-fouling compositions remain effective for only about 4-6 months under severe fouling conditions, for example in tropical and subtropical waters. This means that every six months or so most ships have to go into dry dock to be cleaned, scraped and repainted below the water line. In addition to the heavy cost of dry-docking and the labour costs for scraping and painting there is the even

greater loss of revenue while the ship is idle, which may amount to over £1000 a day. So that even a doubling of the life of the normal anti-fouling paints would be a tremendous saving.

Headquarters of the Research Station is at Cumber House, an old vicarage set in beautiful surroundings at the back of Brixham. But much of the practical work on anti-fouling paints is carried out at a shore station built near the water's edge in Brixham Harbour overlooking Torbay.

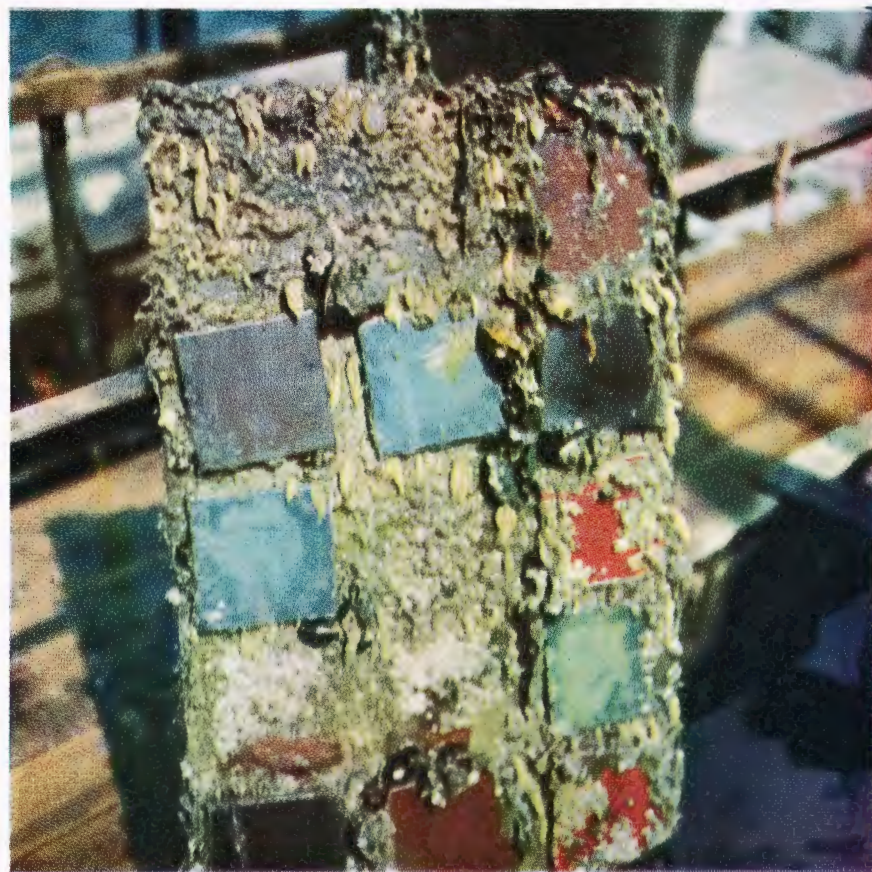
"We've also got three rafts moored out in the harbour which we use for test purposes," said Chipperfield as we left the vicarage and drove down the narrow winding streets of Brixham. In the harbour the trawlers were unloading their catch of the previous night. Up on Berryhead we could see the lighthouse and the remains of the forts built to repel the Napoleonic invasion.

The Shore Station is built on the floor of a quarry cut from the limestone cliffs. Inside is a laboratory filled with tanks through which sea-water is continuously circulated. Large concrete tanks filled the centre of the floor and small glass and stone ones stood on benches round the walls. I could see barnacles and other weird-looking marine creatures inside the tanks.

"These are *Elminius modestus*," said Chipperfield, pointing to specimens of barnacles growing on flat stones



BARNACLES CLINGING TO ROCKS along the shore are a familiar sight to holiday-makers. This photograph is of barnacles grown in a glass tank for study.



UNDERWATER TESTS OF ANTI-FOULING PAINTS are conducted all the year round from a raft in Brixham harbour. The varying effectiveness of different paints is here shown on test panels, some of which are almost free from fouling while others are heavily coated.

in one of the tanks. "They're really an Australian species which arrived in this country a few years ago after surviving an underwater trip half-way round the world. They've settled down quite well in Britain and since 1947 have made their way steadily round the south coast. They're now spreading up both the east and west coasts. In a lot of places *Elminius modestus* has almost completely ousted the native barnacles."

"Rather like the case of the grey and red squirrels," I suggested.

"Yes. The reason in this case is that most native British barnacles only breed once a year, whereas *Elminius* produce many broods of young in the course of a season."

In its early stages the barnacle lives a free-swimming life. Eggs liberated by the adult barnacle turn quickly into larvae—minute shrimp-like creatures which have three pairs of legs and can swim. After moulting six or seven times in the course of a month these larvae change into their final free-swimming form and begin to think about settling down.

The cypris, as it is called at this stage, is equipped with a sucker for attaching itself to a suitable surface and with a cement gland. Having found a suitable home on a rock, pier or ship it cements itself to the surface by its head, and

then rolls over and builds a shell round itself. Its eyes disappear, and its legs turn into fan-like food-collectors which it can stick out through the hole in the top of its shell. When the barnacle is not feeding, it closes this opening with two pairs of plates.

Barnacles can only settle down in this way in comparatively still water, so that ships are fouled almost entirely when they are in harbour. Fast ocean-going liners have the advantage that, owing to quick turnround and high speed, barnacles have less chance to settle down properly. But few ships are as lucky as this, and barnacles will sometimes cover them so thoroughly below water that there is hardly any of the original surface to be seen when the ship dry-docks.

"Come and look round the laboratory," said Dr. Chipperfield. In one corner a girl assistant was counting the young barnacles which had settled on some test panels: these had been brought from Burnham-on-Crouch in Essex, where the Station also maintains test rafts. In periods of heavy settlement there may be as many as 200 young barnacles covering an area as big as a sixpence. The Brixham Station keeps a watch on the settlement

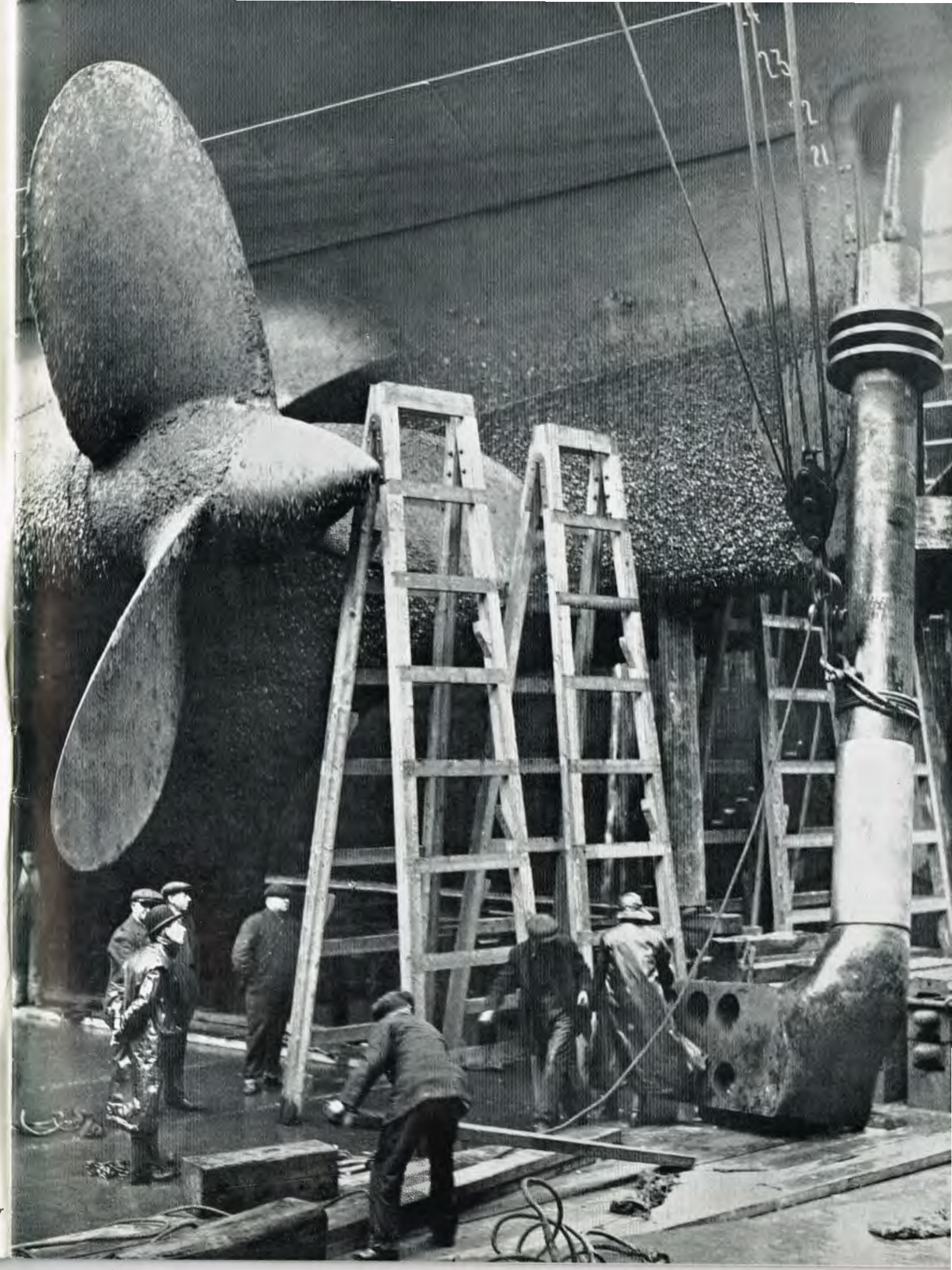
of barnacles and other marine organisms at all its test sites throughout the year; this is essential in order to assess accurately the performance of the anti-fouling paints being tested at any one time.

On one of the laboratory benches a number of painted panels were immersed in beakers of stirred sea-water. I learned that this was to test the amount of material which seeped out from the paint into the water; anti-fouling paints depend for their action on the slow solution into the sea of a poison—usually copper or mercury—which kills or inhibits the settlement of the young fouling organisms. To be effective the poison must come slowly out of the paint film; and it is the control of this rate of leaching, as it is called, which is the key to the production of successful anti-fouling paints.

We left the Shore Station and walked to a little landing stage, where a thirty-foot trawler, the *Smiling Thro*, was waiting to take us to the rafts. We chugged across the harbour, and Bill Farley, who is the Skipper of I.C.I.'s one and only trawler, helped me over the side and on to one of the rafts.

The raft was about 15 ft. square, with a wooden deck and a handrail round it. Bill reached down and lifted one of the wooden hatches in the centre of the raft. He pulled

(Continued on page 329)



The motor ship Stirling Castle in dry dock for barnacle scraping and the fitting of a new rudder

MASTER MARINER

“WARNING of gales in sea areas Rockall, Malin and Irish Sea.” When you hear this on the radio from the comfort of your winter fireside the chances are that Captain Calum Campbell is in the Irish Sea at that moment, with the wildly heaving deck of the 700-ton Nobel Division motor vessel *Lady McGowan* trying to elude the practised grip of his feet and preparing to do even worse.

There is a widely held belief that sailing Britain’s coastal waters is a tame occupation, rather like motor-boating on the broads. In fact, the 50-mile strip of water immediately surrounding these islands offers more in the way of bad weather, risk of collision and navigational hazards than the middle of the Atlantic. For six months of the year fog and gales alternate with monotonous regularity, and the presence of the coast a few miles to leeward is far less a comfort to the sailor than a menace.

So Captain Campbell told me as we sailed peacefully past the Isle of Arran, bound for London with 7000 cases of explosive and detonators for transshipment abroad. “Ay, summertime’s all right,” he said, surveying the sunlit water. “You should have come with us in the wintertime, and then you’d really see something. She’s a lively little ship in a sea.” He broke off to call a course to the man at the wheel and then dived into the chartroom behind the wheelhouse. By this time Arran had slipped into the haze behind us and the mainland was well out of sight. Now he would fix our position, said the captain, and plot a course that would take us to Land’s End.

Sailors of the old school would be surprised, and perhaps a little pained, to see the modern master mariner at work on his chart. Thanks to an adaptation of the wartime radio beacon system that guided our bombers to their targets in Germany, the business of fixing a ship’s position in coastal waters is an easy matter. Captain Campbell consulted three dials on the bulkhead in front of him and brought his pencil down decisively on a spot twenty miles west of the coast. At this point the bearings of three radio stations on the coast, as indicated by the dials, coincided, and this was the position of the *Lady McGowan*, fixed to an accuracy of 100 yards in the twinkling of an eye.

When the helmsman had his orders and the captain had handed over to his first officer, he retired to his cabin below. In the *Lady McGowan* there are four watchkeepers: the first officer, the second officer, the bosun, and the captain himself. Each takes two four-hour spells of duty in 24 hours, the captain being on watch from 8 a.m. to noon and 8 p.m. to midnight. The safety of the ship is his responsibility, however, at all hours of the day and night, and in bad weather he may be on the bridge for twelve hours at a stretch. In case I should be

under any illusions as to how he spent the remainder of his time, he showed me in his cabin a desk littered with papers. The Company, the Ministry of Transport, the Customs and Excise, the Inspector of Taxes and the insurance company must all be fed with documents by the dozen on every voyage. And every Thursday Captain Campbell sits down with knotted brow to calculate the pay packets of the 14-man crew, with all the complexities these entail of overtime, P.A.Y.E., Pension Fund payments and so on.

As well as being his own secretary, accountant, pay clerk and lawyer, the master must act, when occasion demands, as doctor, surgeon, and registrar of births, deaths and marriages. (Contrary to popular belief, he cannot actually perform a wedding ceremony.)

“I must ring up the office,” the captain said next morning. We were in the middle of the Irish Sea, and the *Lady McGowan* was performing antics which the first officer described laconically in the log as rolling moderately. It seemed to me that to put ashore merely to telephone was a waste of time, but I supposed the captain knew his business.

“Hello, Portpatrick,” he called into the radio transmitter. “Hello Portpatrick. *Lady McGowan* calling. Can I have a link call. Over.”

“Hello *Lady McGowan*, this is Portpatrick. Yes, you may have a link call. Over.”

“Hello Portpatrick. Liverpool Central 8000.”

Within two minutes he was connected to I.C.I.’s Liverpool shipping office and was passing the time of day with Mr. Bell there. After reporting his position Captain Campbell asked for confirmation that he was to transfer his cargo to a Cyprus-bound steamer in the Thames on Thursday morning. Exchanges of this kind with the Liverpool office or with the distribution department at Ardeer take place every day. It is important that neither the export ship nor the *Lady McGowan* should be kept waiting in the Thames, for an idle ship eats up money.

Midnight of the third day saw the pilot coming aboard off Dungeness to steer the ship through the wreck-strewn Goodwin sands and into the Thames estuary. Captain Campbell was at hand all night and at 5.30 a.m. gave the order to drop anchor. Breakfast was hardly over before he was cramming his briefcase with documents. “I’m off to London,” he said, and off he went to collect the crew’s pay, to visit the customs house and to see the London shipping department.

After 65 hours in the *Lady McGowan* even Southend Pier seemed to be rolling under my feet. “You ought to have come with us in a winter gale,” said Captain Campbell. “I’ll think about it,” I said.

M.J.D.

Capt. Campbell rejoins his ship



Information Notes

MAGADI IN RETROSPECT

By Ronald Farquharson (I.C.I. Shipping Manager)

Lake Magadi, that outpost of the I.C.I. empire 70 miles south-west of Nairobi, made a deep impression on Liverpool visitor Ronald Farquharson. Here is the story of a community with a way of life all its own.

I ARRIVED in Nairobi on the day the monsoon broke, which coincided with that upon which maximum sentence (later quashed) was passed on the Mau Mau leader—Jomo Kenyatta—and no European in the district was considered secure without having his hand upon a loaded revolver. I was both wet and windy—for I had with me neither mackintosh nor gun. As soon as my arrangements permitted, therefore, I was more than ordinarily grateful for the opportunity of driving along the seventy miles of undulating, often tortuous, track to reach the comparative calm of Lake Magadi.

The way itself, though rough, is never dull to a stranger such as I was, though it may conceivably become a monotonous journey to those who make it regularly. One passes hard by the Ngong Hills and the great Rift Valley—surely country unsurpassed in its magnificence of immeasurable vision. And then there is the colourful and continually changing variety of wild life one may observe from close quarters for most of the distance along the route.

Gazelle and zebra abound by the wayside; wildebeeste and wart-hog are frequently to be seen; and at least one school of capering, chattering baboons is invariable. Most picturesque of all, it seemed to me, was the silently inquisitive giraffe, high-topped by its tufted pegs, who observed one with an air of disdain from considerably closer at hand. The temptation to create alarm by the stridence of one's horn was irresistible, since there is an exquisite grace about the galloping giraffe. Of no less interest are the friendly Masai tribesmen who stand in gossiping groups along the way: never once do they fail to raise an arm or a primitive spear in greeting to the stranger who passes by.

I felt considerably more at ease among them than I did within the territories of the Kikuyu.

Suddenly and unexpectedly one sees ahead the glaring white expanse of the soda lake, and shortly one is being cordially welcomed and received by the European community which serves I.C.I.'s interests at Magadi. A visitor from England, it occurred to me, must always be welcome at the Lake, since

the thirty British employees of the Company stationed there with their wives and families are of necessity a closely confined community who, for most of the time, are dependent entirely upon the resources of their own society. I formed the impression that a new face on a fleeting visit—be it laughing or lugubrious—would create a diversionary topic of conversation which would long outlast its owner's stay. That may or may not be true. I am only certain that I was most handsomely received and entertained and that within three days (and nights), as well as being shown the general layout of the plant and its ancillary installations, I had met and become well acquainted with the majority of I.C.I. characters, who, often under trying circumstances, cheerfully and successfully man what must surely be the Company's most isolated outpost.

I was struck by the sympathetic care and consideration which the Magadi Soda Company have applied to the task of easing what otherwise might be the over-monotonous burden of their employees at the Lake.

The club, I thought, was magnificent by any standards, and it seemed to have—or, with the construction of a swimming pool, shortly will have—all the amenities which could be provided in an otherwise barren area of Central Africa. The golf links, it must be admitted, are not up to the standards of the Royal Liverpool, but it is a sporting course possessed of many undesigned hazards such, for instance, as that of driving into the flank of a prowling hyena shortly before dusk.

The houses—among those which I visited, at least—were well found, modern in design, and seemingly spacious. I gained the personal impression that what was, materially speaking, already in existence or under project at Lake Magadi for European, Asian and African staff alike could probably not by any stretch of ingenuity be improved upon.

But there is, of course, always the problem which is human. And there is no readily cut-and-dried solution to this. I was, as it were, just an overhurried passer-by, yet there was time for me to be equally struck by two things. First, the tactful care, at times amounting to genius, which must be required



SUNSET AT MAGADI. The southern arm of the lake is on the right. Factory and dwelling houses are behind the photographer.

to preserve that distant, contrasting community in such a continuing state of sane sufficiency. Secondly, there is a complementary and aiding attribute which surely must appeal to all save the utterly unimaginative among them: it consists of the simple ability to lift one's eyes, above and beyond the monotonous expanse of white lake, to soft clouds billowing above the clear distance of the Ngurumani Hills.

And along the full twenty-five miles of dusty track which undulates between the two one may drive in safety through the untamed, unchanging life of Africa. I think it was the bird life that abounds along that way which fascinated me most of all.

Invariable associate of vultures were grounded gaunt-looking marabou storks, whose plumage was once so beloved of Victorian ladies. Somehow the bearing and strut of these tall feathered creatures suggested a pompous distinction of directors leaving the boardroom table with a combined gesture of disagreement and high dudgeon.

But above all else, utterly unforgettable, were the flocks of

countless flamingo. I saw them (here I draw on two expressions written by Noreen Aitken at Lake Magadi) I saw them as "a pink and slowly moving feathered tide" which, as they lifted in one solid mass of flight against the sunset, assumed the beauty of "a delicate rose-coloured cloud."

It well may be that if you live for long enough on the shores of Lake Magadi the significance of what lies immediately beyond it—all that is essentially Africa, in fact—gives way to a nostalgic yearning for the more confined limits of rural and urban England.

I do not know. I only know that I left there with a single, festering regret. It was a first-time wish that I had been born a score of years later than the turn of the present century: because then, if given the opportunity, I could have lived at the Lake for two decades. The wish was offspring of the thought that around one there lay not only the opportunity of achievement but the elusive element of time and a limitless horizon, which are in themselves the very essence of inspiration.

BARNACLES AT BRIXHAM (continued from page 324)

up a long steel tube that hung down into the water underneath the raft and propped it on the deck. The flat plate on the end had a dozen or so painted test panels screwed on to it. They were coated with different types of anti-fouling paint. The differences between the paints were obvious. Some panels were completely free from fouling; others had a few barnacles; others had marine animals or weeds attached to them. But on a few of the panels and on the unpainted surface of the panel-holder marine animals and weeds of all shapes and sizes were crowded together so closely that little of the original surface could be seen.

The barnacles on the panels were all quite small. The biggest was no more than half an inch across. And all of them, to a man, had closed their little shell doors as they had been lifted from the water.

Under the water, the barnacles attached to other panel-

holders and to the raft itself were still open. I could see them waving their feathery food-catchers about in the water as though they were fanning themselves to keep cool.

Bill Farley replaced the panel-holders, and we climbed into the trawler and chugged back across the harbour. Back at Cumber House I saw other members of the Research Station at work. One was examining the young stages of marine fouling plants or seaweeds, many of which, like the barnacle, have a free-swimming stage; another showed me electron photomicrographs of marine bacteria which probably play a large part in the breakdown and solution of anti-fouling paint. In the paint laboratory I saw test panels being coated with anti-corrosive and anti-fouling paints ready to take up stations on the rafts.

I wondered if the barnacles knew what was in store for them.

THE ELECTRONIC BRAIN

By J. P. Lewis (Research Department)

Our photograph of an electronic brain in the September issue appears to have interested a large number of readers. Basically, these machines count and record; but they can count so fast and record so fully that one machine in Manchester, called MADAM, plays draughts by calculating the advantages of each move. Here is a simplified explanation of how these robot brains work.

ELECTRONIC brains! The words conjure up wonderful visions of monstrous machines with steel arms and legs, great lenses for eyes, and superhuman intelligence. If we start letting our imagination work on this theme for long we soon see the prospect of machines rising up against their masters and threatening mankind with extinction; Hollywood has already begun to exploit ideas like these with startling results, to say nothing of a whole spate of stories in the science fiction magazines, which this particular scientist reads avidly.

What are the facts? What are the so-called "electronic brains" that exist already? What exactly will they do in the way of "thinking"? And what might we reasonably expect them to do in the future?

The proper name for electronic brains is "automatic electronic calculating machines," and all they really are at bottom is very fast adding machines. This sounds rather disappointing, perhaps, but actually it comes a lot nearer to Hollywood's futuristic visions than you might at first think. I shall say something about this later. To begin with, let us consider them just as calculating machines, machines that will do sums for us to save us the labour of doing them ourselves—for that is what electronic calculators have been designed to do.

If you have not thought about it before, it may surprise you to be told that an adding machine is capable of doing any kind of calculation you can think of. What about multiplication and division, you may ask, let alone all the more highfaluting operations done by mathematicians like extracting square roots and so on? But actually all these are really only very complicated combinations of addition and subtraction.

To multiply 624 by 9 simply means adding 624 to itself eight times. Of course, that is not how you do it yourself—you do it by carrying your nine-times table in your head, and for you it is much quicker that way. But you *could* do it by adding, and if you examine them you will find that the same is true of even the most complex calculation. Now the whole point about electronic calculating machines is that they can add numbers very fast indeed. The fastest machine in this country, the one at the National Physical Laboratory at

Teddington, can add two numbers, each running up to as much as a hundred million, *in only thirty millionths of a second*, and an electronic machine is considered slow if it takes as long as a thousandth of a second to do this job.

The result is that it becomes possible to do any calculation by the long-winded method of repeated addition on these machines and still do it far faster than a human being can even if he is equipped with all manner of multiplication tables and can use all the best short-cut techniques of the mathematicians.

This tremendous speed obviously opens up all sorts of interesting possibilities, and electronic calculators are no more and no less than tools for exploiting these possibilities. How do they manage to work at such speeds? Simply by using electrical devices for counting which are capable of ticking away at millions of times a minute. In fact these machines use the simplest of all possible ways of doing sums, by counting one at a time! For that reason they are called digital machines (a digital calculator is *not* a man who can count only on his fingers!).

Most of them do not even count in tens as we do. We count up to nine and start again in the next column, but of course there is nothing sacred about the number ten—we only use it because we happen to have ten fingers. When we are talking about money we English actually do use a different scale of counting—much to the confusion of foreigners. Most electronic calculators use the simplest possible scale of counting—they count in twos. The scale of two, or binary scale, is rather interesting because there are only two figures in it, 0 and 1. After 1 it goes 10, which stands for two, then 11 for three, then 100 for four; five will be 101, six 110, seven 111, eight 1000, nine 1001, ten 1010, eleven 1011, and so on.

This would be a cumbersome scale for human beings working with pencil and paper to use—where we write 1159 for one thousand, one hundred and fifty-nine, a binary man would have to write 10010000111—but it has tremendous advantages for an electronic machine. If numbers are to be sent from one part of a machine to another the obvious thing to do is to send them electrically, since electricity can travel along wires at the

speed of light (200,000 miles per second), and to do that they have to be coded into something like the dots and dashes of the morse code. Obviously, if we count in twos we have a code absolutely ready made if we agree that 1 shall be a dash and 0 shall be a dot, or vice versa.

Of course, counting by itself is not enough. If we could only count on a machine we might be able to do simple addition and multiplication, but to do anything more complicated we should have to stop and write down the answer at every stage, and this would take so long that all the speed of the machine would be lost. It is necessary to have a way of storing numbers, and we must be able to put them into the store or take them out at the same sort of speed as we can count if we are going to use the machine to full advantage.

Electronic computers employ various types of device for this purpose, and perhaps the simplest to understand is the magnetic drum, which is a rotating cylinder rather like the old-fashioned type of gramophone record, only instead of being made of wax and having scratches on it which are picked up by a needle, it is metal and has tiny spots of magnetism imprinted on its surface rather in the same way as a tape recorder does, and they are "read" by an electric pick-up which converts north and south magnetic spots directly into electrical dots and dashes.

This sort of device can store strings of spots representing numbers in the binary code in several tracks round its circumference. The spots are so small that it is possible to get 1000 numbers, each running up to a hundred million, on a drum 2 in. long and 1½ in. diameter. Such a memory drum might rotate at 3000 revolutions per minute, and the same device which is used to "write" the spots round each track can also be made to "read" them, which is a useful economy. A single memory drum can be used over and over again like recording tape, and it is not even necessary to rub the old numbers out, as writing new ones on will rub out the old automatically.

The big difference from a gramophone record is that the memory of a calculating machine does not have to play right through from beginning to end; it is possible, by careful timing of the rotations on a special electric clock, to select just the number you want from the right track and the right place in each track whenever the need for that number arises.

The sort of work for which the machines which have been built so far have been designed is where millions of repetitions are needed. The most obvious problem of this type is that of calculating income tax for hundreds of different employees in a factory. Here the same sort of calculation has to be carried out again and again on different numbers—the code numbers of, hours worked by, and bonuses due to, each man.

There are lots of problems like this in scientific work as well



... select the number you want

as in accounting. An electronic machine can be of considerable use in this sort of work. Its memory can be made to contain details of codes, insurances, etc., and also, in coded form, the instructions for the additions, subtractions, multiplications and divisions required each time. The details for each man can then be fed in very fast, using punched cards of the Hollerith or Powers-Samas type which generate electrical dots and dashes automatically, whereupon each calculation is done almost immediately and the answer can be printed on the same card as the initial details.

So far electronic calculating machines are rather a novelty—certainly in this country, where there are probably not more than twenty machines altogether. The practice has grown up of giving them rather curious, almost personal names, made up of initials, which people now try to think up so that they spell out a nice name.

Thus the early machine built at Cambridge University only had the very prosaic initials EDSAC (Electronic Digital Sequence Automatic Calculator), which is just about pronounceable but not very attractive; but the Manchester University machine is called MADAM (Manchester Automatic Digital Analytical Machine) and the one at the National Physical Laboratory is called ACE (Automatic Computing Engine); when Birkbeck College, London, decided to build one for calculations connected with X-ray work they called it APEX (All-Purpose Electronic X-ray computer).

There can be no doubt, however, that the novelty era is passing, and several firms are starting to make these machines for sale (the English Electric Co. are making one which they call the DEUCE, because it is a sort of successor to the ACE at Teddington), so we may expect to see them in use more and more in both science and commerce in the next few years. I.C.I. is keeping a very close watch on developments from both points of view.



... extracting square roots

But there is another result of the increasing familiarity with the ways of making these machines which is more intriguing, and that is that designers are thinking more and more about ways in which they can be made to do tricks which come close to human intelligence itself. MADAM for instance, has been made to play draughts by calculating the advantages to be obtained from each different move and choosing the best move by the sort of trial and error estimation already described, and APEX will make bids at bridge by the same process. So far these tricks have all had to be built into the machine by its human designer, but it has been shown that a machine could revise its own instructions by trial and error and so learn by experience. And of course there is the similarity between delay-line memories and the human brain.

Perhaps it is not without portent that one of the university machines in the U.S.A. is called MANIAC. The Rise of the Robots may not be so far off after all!

AN EXTRA £10m. OF BUSINESS ABROAD

By G. L. Dover (Overseas Department)

How many people realise that the resources of I.C.I. abroad are used for the sale of goods other than our own—to the tune of over £10 million a year? In other words, we act as selling agents for many outside companies. Here is an account of how this valuable business is handled.

THE I.C.I. man travelling abroad is sometimes puzzled to see the local I.C.I. selling company advertising products quite foreign, as he thought, to I.C.I. In Pakistan, for instance, he may see advertisements for Scott's Emulsion which end with the words "Sole distributors: I.C.I. (Pakistan)." In Egypt, prospective buyers of many kinds of goods, from agricultural sprayers to vitamin tablets, are directed to I.C.I. (Egypt). All over the world, in fact, I.C.I. companies are dealing in goods which find no place in the Products Handbook: arsenic, chestnut extract, cornflour, fire insurance, surgical dressings, tinplate, washing blue, yarns—there is apparently no end to the list.

The explanation is straightforward, but not widely known. All these non-I.C.I. products are ones for which I.C.I. selling companies abroad have obtained the agencies from the manufacturers. Acting as the exclusive selling agents for 400 different groups of products made by 260 non-I.C.I. firms in Britain, America and elsewhere, I.C.I. overseas companies now handle business worth, to them, over £10 million turnover every year in addition to their I.C.I. business.

What is the purpose of this "agency" trading? Firstly, our overseas companies want, and indeed need, to give the best possible service to their customers. Part of this service is to supply them, within reason, with products outside the I.C.I. range but complementary to it. Overseas customers often prefer to purchase all their requirements from one source: this is particularly true of imported materials, the reason being that customers often lack the knowledge or facilities for buying from abroad themselves, with all the complexities this entails.

Secondly, if our overseas companies did not supply customers with non-I.C.I. products, the customers might be driven to buy these from other traders, who might take the opportunity to sell them products competitive with our own.

The agency trade of I.C.I. has been built up over the years,



... exclusive selling agents

the earliest agreement dating back to 1921. Proposals for new agencies arise in various ways: sometimes the outside manufacturer, after making a market survey in the territory, asks an I.C.I. overseas selling company to act as his selling agent; on other occasions it is the I.C.I. company which asks for the agency of a particular product of a particular manufacturer.

However the proposal arises, the enquiry is first referred to the Outside Agencies Section at Head Office, whose job is to ensure that the prospective agency is acceptable and to arrange terms satisfactory to both parties.

One of the first guiding principles must obviously be that agency trading is never undertaken in products which compete directly with those of I.C.I. Secondly, agencies are only accepted if they can be handled with the selling company's existing facilities. Thirdly, the agency trade must be profitable in itself. When these conditions are satisfied and if there are no other snags, then the overseas selling company deals direct with the manufacturer.



... it ceases to be worth while

principals. In either event it represents useful low-cost publicity for the I.C.I. overseas company.

There are many advantages in having regular agreements by which the I.C.I. company acts as the exclusive agent of the manufacturer. It restricts the possibility of business, once it has been established, being directed through other hands; and if business happens to go direct from a customer to a manufacturer or through a London agent, then the I.C.I. company still receives its overriding commission.

WALLPAPERS

By Constance de Pinna

Modern wallpapers with their beautiful range of colour and pattern offer perhaps the most potent of all influences in decorating the home. Correctly used, with an eye for the overall effect, they can transform the ordinary into the lovely—and at comparatively little extra cost. Here is an experienced decorator's advice on how to choose.

WALLPAPER is very like gunpowder—if you are too timid with it the effect is merely unsettling, while if you overdo it the result can be devastating.

The first step is to decide whether you are going to use wallpaper at all. The other possibilities are paint and distemper. Paint, although durable and easy to clean, is rather an expensive way of finishing large areas of wall in ordinary homes. Distemper is cheaper in first cost than wallpaper and is rather easier for the amateur to put on, but it catches the dust, is not as easy to keep clean as wallpaper and will not last nearly as long, so that in the long run a medium-priced wallpaper may turn out cheaper.

If your walls are in beautiful condition, if you have many rather large and important pictures (especially oil paintings), if all your furniture is exquisite, and if on top of all this your rooms are rather small, you may quite well decide to use a plain pastel shade, and in that case the choice between wallpaper and distemper is simply a matter of ready money.

Most of us, however, are not blessed with exquisite furniture and a collection of Old Masters, and it is more than likely that a well-chosen wallpaper may do quite a lot for several places in the house, particularly the dining room, the sitting room, and the hall and staircase. You can also paper the kitchen and bathroom, but the effect is apt to be rather self-conscious, and in any case wall-

paper—unless it is varnished over—does not stand up to hot, steamy atmospheres as well as gloss paint.

The next thing is to size up the room that you are going to paper, to decide whether you are going to paper the whole room, or whether you would rather use a more striking paper to emphasise one wall or an alcove and thus alter the apparent shape or size of the room, as has been done in the room sketched on page 336. You ought to have formed some idea of the type of wallpaper you want before actually setting out to inspect the bewildering range of papers of all types and prices that are now available.

There is one other general point. If you are very satisfied with the room as it is, as far as furniture, upholstery, pictures and so on are concerned, do not strive too consciously after getting an effect with the wallpaper. When people come to visit you, you want them to say "What a delightful room this is!" not "What a lot of trouble you must have taken over choosing this wallpaper!" On the other hand, if you got all your furniture from, say, your mother-in-law, and are really rather making do with it, you can often distract attention from it and improve the whole appearance of the room enormously by going in for a rather bold paper on the walls.

Although there are many hundreds of different wallpaper patterns available, the practical everyday designs group themselves into five basic types.

First, there are the striped wallpapers. The way in which these are used depends very much on whether the effect aimed at is formal or informal. Used formally, they look best, of course, in well-proportioned rooms with Adam fireplaces and Regency furniture, but unless you are a good deal richer than I am your rooms probably will not be like that. In the right shades—such as light grey and yellow—they look extremely well with contemporary (as opposed to merely modern) furniture, and in this case very charming effects can be obtained by papering only a part of the room. This more informal treatment helps to break a room up, and the stripe seems to give an impression of height to the wall.

For this reason striped papers are usually better avoided on narrow staircases—though here again there are many exceptions, and the staircase of a small, rather formal, town flat may look very well with a striped wallpaper and white-painted banisters, for example. It is better to avoid a narrow stripe unless you have plenty of good pictures to break up the dazzling effect. If you have any silhouettes in black oval frames, a striped wallpaper will look almost too obviously perfect behind them.

Dark or Light?

Second, there are the charming, nondescript, overall patterns like No. 4, which may be either dark or light. The lighter papers of this type are excellent for halls and staircases, and the darker papers are very good for focusing attention on one wall of a room. They have the effect of making a wall appear further away and thus altering the shape of the room. In the ordinary small house, dark wallpapers of this type are best avoided for papering whole rooms because they tend to make the room oppressive—except some of the red shades, which can give a cosy effect in the right room. Incidentally, dark papers are not necessarily unsuitable for badly lit rooms. It is the combination of dark papers and dark paintwork that is fatal; but with crisp, white-painted doors, mantelpieces, skirting boards and window frames a good dark paper can actually appear to lighten a dark room by emphasising a clear contrast.

Third, there are what might be called the small trellis wallpapers like No. 1. In light shades of green, grey or yellow they can be very effective. They are particularly good for making small rooms appear larger. I have heard that the explanation of this is that the mind's eye looks through the pattern to what it imagines to be open space beyond.

These rather fancy patterns should be left alone, however, if you have a lot of chintz-upholstered furniture or chintz curtains. The whole effect becomes simply too much, and at its worst the furniture tends to merge in-

visibly into its background. The dark red paper shown, or something similar, would be effective in a dining room or study—which would be very cosy with the curtains drawn, the fire blazing and the candles lit. The Victorians often used this type of wallpaper for dining rooms, as they had the idea that red made one hungry. On the other hand, these dark red papers require a good deal of judgment in the choosing, and at its worst a room papered in this way, with no light-coloured paintwork to provide contrast, tends to suggest the inside of the stomach of a large animal.

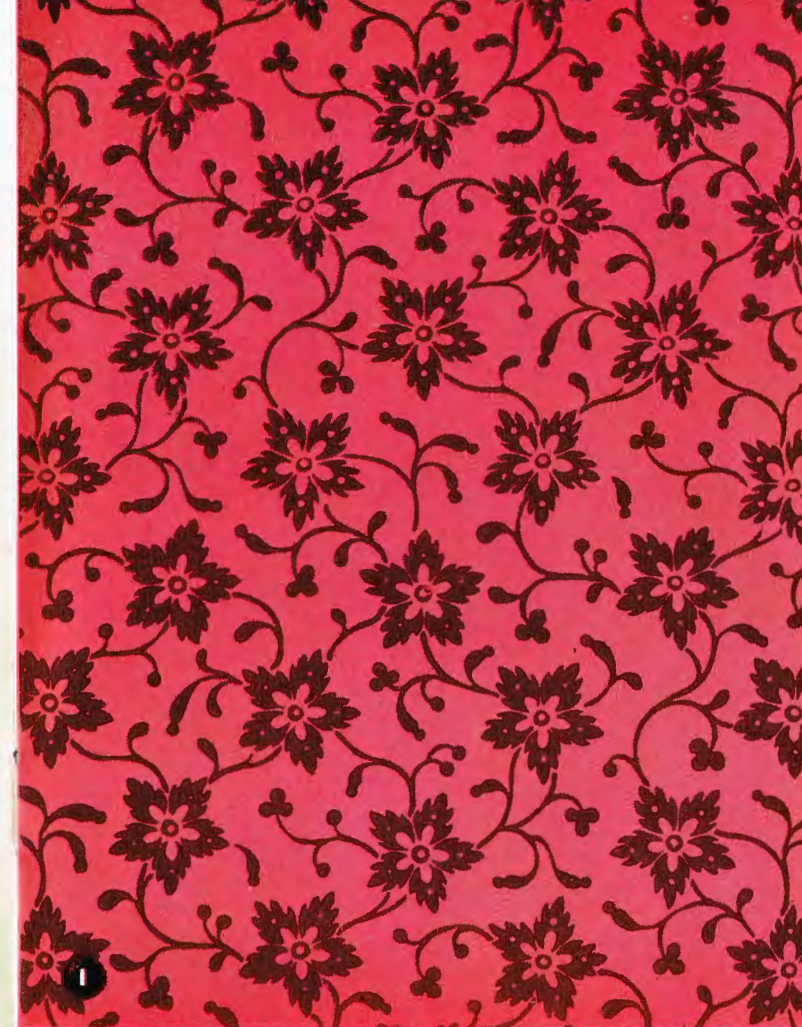
Fourth, there are what one might call the horticultural types of wallpaper, with ivy leaves, roses, dressing-gown cords, clingbine, grapes and other motifs such as that shown in No. 3. Patterns of this type come in various sizes, and the most important thing is to choose the right size for the size of the room. They are obviously better in sunny rooms with not too much of a floral pattern about the furniture and curtains. Used in badly lit rooms they may easily have an unsettling and wistful effect. They are very good for light halls and large open staircases. In general, it is true to say that floral papers are better for houses in the country. In town houses they are apt to seem rather affected, not to say "pansy," except in bathrooms, where they can be quite amusing.

Fifth (not illustrated), there is the ultra-modern—what one might call Festival of Britain—type of wallpaper with a pattern based on crystal structure patterns or something of that sort. These are extremely effective in modern houses or flats with large windows and ultra-modern furniture and fittings. They can also be most pleasant with, say, Regency furniture, but they are very demanding, and emphasise in the most extraordinary way any shabbiness or inadequacy in the rest of the décor. In fact, they do take some living up to.

Traditional Patterns

There is one other type of wallpaper that we have not mentioned—the kind found in far too many British homes. It gives an overall effect of some light shade of peach, pink or orange, lightly stippled with flecks of gold, and it is used in conjunction with a dado (in what was considered in about 1934 to be a modernistic design) consisting of triangular patterns of black, orange and gold interspersed with motifs suggesting fruit.

The only merit of these stippled papers and jazzy dadoses is that they harmonise (if that is the right word) perfectly with the cube-shaped teapots, chromium pedestal ashtrays, angular tinted cut-glass mirrors and brightly coloured, but not very well executed, statuettes of girls straining backwards against greyhounds that were typical of the decorative ideas introduced at about that time.





An artist's impression of the effect obtained by papering one wall only of the living room. The eye is carried at once to the fireside end of the room, thus giving an illusion of greater space.

We are all—I hope—growing out of this unfortunate phase of interior decoration, but it is only fair to say that wallpapers of this type have one advantage—they are staggeringly cheap. I was looking at a mottled and embossed paper of this sort only the other day; it was 2s. 6d. a piece, which is certainly a great deal less than the patterned wallpapers shown here, which are anything from 5s. to 15s. a piece and more. All the same, I personally would sooner use plain white lining paper than these lurid, muddy, nondescript designs.

Let us assume that you have chosen a suitable paper. It only remains to hang it. Paperhanging is largely a matter of moral courage. Do not allow yourself for one moment to be intimidated by the thought of it, and then everything will go well. Buy a little more wallpaper than you need, and then, if dirty patches develop over the years,

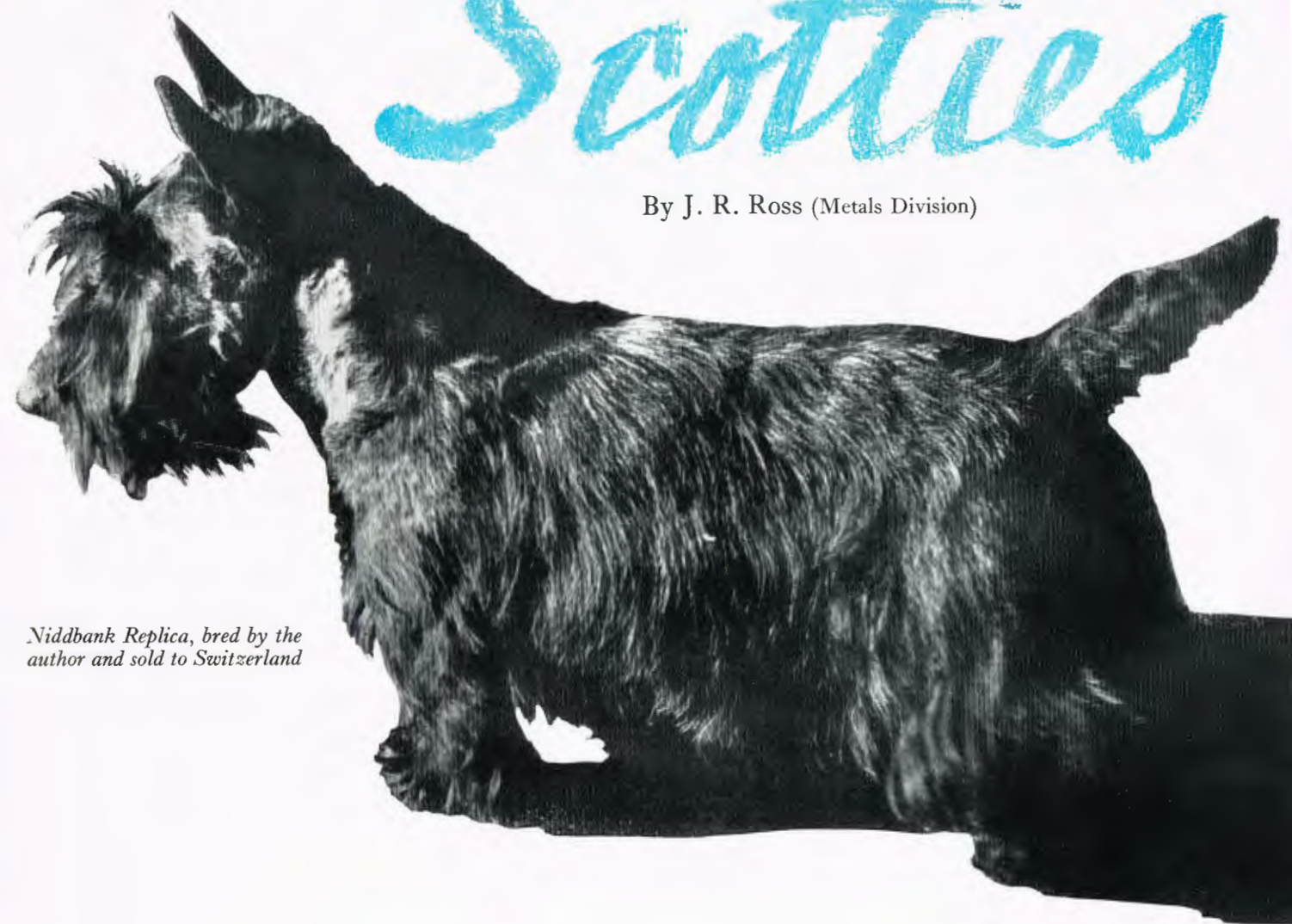
you can touch them up. Probably the most important rule for success in paperhanging is to make sure that you have a properly prepared wall surface to hang the paper on. Bulging or cracked walls can never be papered satisfactorily, and even a good wall should be scrubbed down and thoroughly cleaned before the wallpaper is applied.

If you want to make a real job of it, use lining paper first. This will help to smooth over any irregularities in the wall and will make it easier to give a neat and finished job with the final paper. Also, the experience you get in hanging the lining paper will help you to anticipate any snags before you come to the wallpaper itself.

Finally, do not bother too much about listening to experts. Their opinions are swayed by fashion, and change far more often than you will want to change the wallpaper. Just choose the paper *you like*.

Scotties

By J. R. Ross (Metals Division)



Niddbank Replica, bred by the author and sold to Switzerland

Breeding Scottish terriers is a 23-year-old hobby with John Ross — and a hobby crowned with championships. Here is an expert's advice on how to breed dogs successfully.

A LOT of water has passed under the bridge since I bought my first Scottie 23 years ago, never dreaming that this was to be the start of a hobby—breeding and showing Scottish terriers—which looks like lasting a lifetime.

It was not long before I was bitten by the showing bug, and thinking (like most novices) that my dog was something special, I entered him for a local show. Living in the country as I was at the time, there was no one I could

turn to for advice as to how to trim him and so on, so I enlisted the help of the local barber. He, of course, had less idea than I had, but between us, and with the aid of a Scottie photograph, we gave the dog a “short back and sides.” The poor dog must have looked dreadful. When I entered the ring I noticed all the other exhibitors stopped what they were doing and looked at him, and in my ignorance I thought they were admiring him.

I had a rude shock coming, however, as much to my

indignation I was placed at the bottom of the class. Feeling rather peeved, I waited until the end of the show, waylaid the judge and asked him what was wrong with my dog. He said it would be quicker to tell me what was right with him, and he did!

After this I got the urge to breed something worth showing, but my first bitch was a bad breeder, so she was sold as a pet. Another unlucky buying and selling had to take place before I realised that I was wasting my time and did what I ought to have done in the first place—go to a reputable kennel, state my wants, and let my purse be my guide.

With a bitch whose pedigree glittered with the names of her champion forbears I was off my mark at last to breed my own "champs." Litter after litter produced good Scotties, though nothing in the championship class. In fact, it was quite a red-letter day when I got in the money and won a prize card of any sort at a show.

I found that other exhibitors were very helpful and encouraging, and on the advice of an old-timer I attended as a spectator as many championship shows as possible, seeing the best dogs in the country. In this way I gradually acquired an eye for a dog.

I gradually fixed in my mind the type of Scottie I liked, and was guided by the standard of breed as laid down by the Scottish Terrier Club of England. I made a Dural metal pattern of my type and mounted it on a base. That was my prototype, and I knew that if ever I bred one like that I would be on the crest of the wave.

My First Champion

A few years elapsed during which I was more successful in the ring, and then whang! my first champion arrived in Ch. Niddbank Blue Print. And what a champion! He won seven challenge certificates (three being the number required to make a British champion), and he was Best of Breed six times. He won the coveted title at the Scottish Terrier Club of England two years in succession. At the first post-war Crufts he won the title of Best of Breed and was placed fifth in the final round.

Quickly on his heels I made another champion in Margaret, who when mated to Blue Print produced still another champion in Niddbank Miss Blue Print. This bitch had a spectacular show career, never being beaten in her classes at championship shows. She won her second challenge certificate at Crufts, where her opposite number in dogs, who won the challenge certificate, was also sired by Blue Print. She gained her title of champion in four shows and was still not quite a year old. She also had the honour of being the first post-war Scottie champion to be sired by a champion and out of a champion. Her dam Margaret also won the blue riband of that year by being the supreme exhibit at the Scottish Terrier Club of England.



A handsome litter of Scottish terrier puppies

Now, one of the pitfalls in breeding animals is indiscriminate inbreeding, so I used an outcross to produce my next champion, Niddbank His Nibs. To the novice who casually talks about taking up breeding there is no easy road to success. One may have the good fortune to breed a good one from mediocre stock, but his progeny will almost certainly revert again to his medium-quality ancestors. To ensure a modicum of success one must breed only from the best specimens in each litter. By doing this the bad points, i.e. light eyes, bad mouths or low-set tails, will disappear and the general quality of the stock improve. The hall-mark of good breeding will have been reached when two or three winners appear in one litter.

I am now looking forward to going to Crufts in February with some of the youngsters from this year's breeding and have high hopes in a beautiful bitch bred from Miss Blue Print. My entries are at present being initiated

into the art of good ringcraft. Teaching them to walk properly and stand correctly calls for much patience on the part of the owner, but the reward is gratifying if a red card is won in such distinguished company.

The onlooker sees the finished article in the show ring, little realising the amount of work which has gone on behind the scenes. In the case of a Scottie the backroom work commences about ten weeks before a show, for that is the time usually taken for a coat to be put into show condition. This is the novice's pitfall, as many think that a dog can be got ready in a week or even the evening before a show. To learn how to trim a dog, which is a vastly different proposition from stripping a dog, one must be shown the rudiments. Stripping a dog means removing with the aid of a stripping knife the outer dead coat, and this requires doing twice a year.

Should anyone contemplate breeding after reading this short article, there are several things to be remembered.

Firstly, neighbours soon lose their neighbourliness when they have to listen to other people's dogs barking, and that of course means a house on its own with a piece of land (or not keeping more than two bitches). It is a seven day a week hobby, and in the depth of winter when one might be snuffled in a cold and it is snowing and sleeting outside, the dogs have still to be exercised, dried and fed. Good draught-proof kennelling is a vital necessity, and time spent on grooming is never wasted. Only keep the best, for poor specimens in a kennel are usually known as biscuit-crushers.

Remember that the strength of a kennel lies in its bitches, and only a foolish breeder parts with his best. A high-class show bitch which produces stock like herself can seldom be bought, but the stud services of the best dog in the country can be paid for.

Lastly, and most important—do not attempt to breed dogs if your wife is not interested!



(Photograph by Charles Wormald, The Kynoch Press Studio)

W. L. C. TWEEDY

WILLIAM LIONEL CARLYON TWEEDY—could the biographer wish for a more sonorous opening?—is one of those I.C.I. figures (and there are many) who are so very much more than the label for their particular job would appear to signify. Tweedy's particular label is President of I.C.I. (Peru).

But he is much more than that. A botanist of no mean order (he has his own experimental garden), he did much behind the scenes some time ago to produce a standard book on plant life in the Andes. And he knows his Spain almost as well as his Peru. The incomparable collection of pictures in the Prado at Madrid is so intimate to him that at a range of many thousand miles he will tell you exactly what to look for and where to find it, and (characteristically) what *not* to look for. The detailed knowledge is almost breathtaking—"As you go in the main hall, on the left-hand wall you will find . . . a Charles or a Philip landing at some island; the general theme is terrible, but there is a jolly group of onlookers whom the artist evidently had much more fun painting than the monarch himself." His

real love is El Greco: "All the pictures are so full of life and move so much that you get restless yourself."

Known to all his friends as Dum—a happy if undeserved nickname, since his impressive stature belies the original Tweedledum—he possesses in full measure the Latin characteristic to be outspoken and vivid. If the correspondence from the office of I.C.I. (Peru) generally conforms to the normal standards of politeness, perhaps this is sometimes only achieved after an inward struggle on the part of the president. In conversation, at any rate, opinions are apt to be rather more forcefully expressed; firmly fixed in the memory, for instance, is a characteristically uncompromising reference to "poor Charles I and that warty beast Cromwell."

Perhaps nowhere in the I.C.I. realm overseas is the incumbent so completely part and parcel of the local scene as is Dum Tweedy. He is *par excellence* the square peg in the square hole, a phenomenon which all the skill and all the good will in the world do not always achieve.

I.C.I. NEWS

CHEMICAL INDUSTRY STUDIES WORK STUDY

FIVE hundred representatives of the British chemical industry met at Buxton last month to hear I.C.I. specialists talk about work study and to discuss what contribution work study techniques can make to the prosperity of the industry.

The conference was organised by the Association of British Chemical Manufacturers as a direct result of the report of the Heavy Chemicals Productivity Team which visited the U.S.A. in 1952. This team unanimously recommended the widest use of work study. I.C.I., as the foremost exponent of work study in Britain today, was asked by the A.B.C.M. to put its experience in this field at the disposal of the whole chemical industry.

In his introductory talk Sir Ewart Smith, Technical Director of I.C.I., stressed the fact that although most of the speakers would be from I.C.I., the Company did not approach the conference as a one-way affair, and they hoped to learn as much as they were able to teach.

Mr. R. M. Currie, head of the I.C.I. Central Work Study Department, who followed him, took "Higher Productive Efficiency" as his theme. It was in the attainment of this, he said, that work study could make an invaluable contribution to industry. Only through extra production from existing resources could the capital for wider improvements in the nation's industry be provided, and hence the standard of life be raised. The only way to ensure the efficient use of existing resources was to study men and their jobs—management as well as operatives—and ensure for everyone a full, fair day's work, effectively applied.

The general field of work study was described by Mr. J. Grange Moore, deputy head of I.C.I. Central Work Study Department, and later speakers outlined particular aspects of work study. Afterwards the conference split into discussion groups, whose chairmen and group leaders had come to Buxton

from the Divisions and Head Office to give a complete picture of I.C.I.'s approach and activity in this field.

At the conclusion of the conference Mr. W. J. Worboys, Commercial Director of I.C.I., explained that the initiative for making use of all the information on work study now seen to be available in many companies as well as I.C.I. rested with the industry. Mr. C. G. Hayman, chairman of the Association of British Chemical Manufacturers, said this was a challenge that the Association, on behalf of the industry, was glad to take up.

At a dinner given by I.C.I. to the conference delegates the toast "The Chemical Industry" was proposed by Sir Harry Pilkington, president of the Federation of British Industries. On our achievements in productivity, he said, the survival of Britain as a force in the world depended; it was vital that the importance of productivity should be understood by everyone in industry from top to bottom, and the delegates to this conference could do untold good by acting as "missionaries."

Another speaker at the dinner was Mr. E. Higgins, national officer of the Transport and General Workers Union. He



The Duke of Devonshire, Mayor of Buxton; Dr. Alexander Fleck, Chairman of I.C.I.; Sir Harry Pilkington, president of the Federation of British Industries; and Sir Ewart Smith, Technical Director of I.C.I., during the Buxton conference



Dr. Fleck chats with Sir Thomas Hutton, director of the British Productivity Council

said he believed this to be the first occasion on which delegates from an entire industry had met to discuss a question of productivity, and also the first on which one company had volunteered expensively acquired information for the benefit of a whole industry.

Dr. Alexander Fleck, Chairman of I.C.I., referred to the Heavy Chemicals Team's report as "very striking"; if I.C.I. had been able to help towards attaining the worthy objects recommended in the report, it was proud indeed to have done so.

MR. ROGERS' GIFTS TO THE COMPANY

A garden seat of Burma teak bearing the carved inscription "PRESENTED BY JOHN ROGERS ESQ." will soon be delivered to the Company's principal clubs and playing fields.

Shortly before he retired Mr. Rogers decided to commemorate his long, happy and close association with all parts of the Company by making this gift. Works councils and others have been most appreciative of Mr. Rogers' kindness, particularly of his choice of a garden seat.

Mr. Rogers has given for use in Imperial Chemical House, London, an antique mahogany brass-bound flower tub, which is to be put on the eighth floor outside the refectory.

'TERYLENE' FOR FRANCE AND ITALY

Under two new licensing agreements 'Terylene' will be produced in France and Italy.

In France 'Terylene' will be manufactured and sold by Société Rhodiacéta of Lyon, a company which already manufactures acetate rayon and nylon. In Italy 'Terylene' will be made by the Montecatini Chemical Company of Milan.

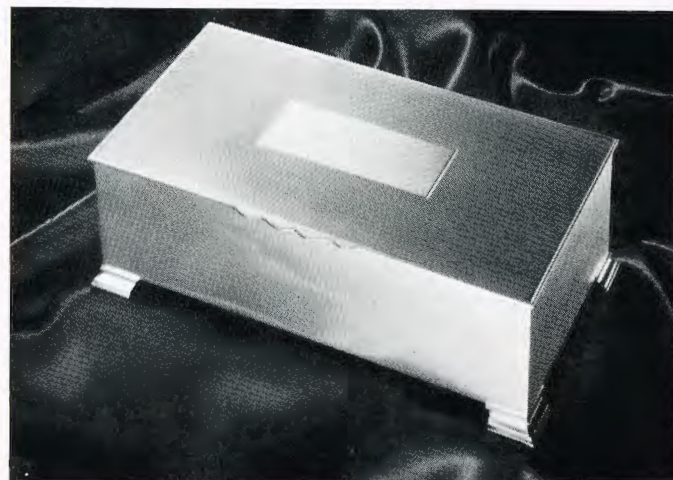
I.C.I. holds the exclusive world rights for 'Terylene' except in the U.S.A., where the rights to produce and sell polyester fibres were acquired by E. I. du Pont de Nemours in 1947. In order to meet the potential demand in Canada an I.C.I. subsidiary, I.C.I. of Canada Ltd., is building a large 'Terylene' plant at Millhaven near Kingston, Ontario. In Britain the first stage of the £20,000,000 plant at Wilton is due to be com-

pleted before the end of 1954 and in production in 1955. The second stage is due to be in production in 1956, giving a total output of 'Terylene' from this plant of 22 million pounds a year.

ALTERNATIVE LONG SERVICE AWARD

From the beginning of 1954 anyone completing 30 years' service with the Company may choose a silver cigarette box in place of the existing standard award of a gold watch.

A photograph of the cigarette box is reproduced below.



HEAD OFFICE

Girl of Many Friends leaves to Marry

There were probably many people in I.C.I. who were selfish enough not to rejoice with Miss Margaret Robertson when she left I.C.I. to marry Mr. John Taylor of Dyestuffs Division.

In the last six years Miss Robertson, as receptionist of the Head Office Travel and Visitors Department, has made innumerable friends in I.C.I. The visits of overseas members of the staff to London were simplified and made enjoyable by



Miss Margaret Robertson, I.C.I.'s London receptionist, at her marriage to Mr. John Taylor

her charm and personality and by her knowledge (as one visitor put it) "of where everybody was sitting, where we ourselves were staying, where we ought to go to get some money and how we ought to set about what we had come over to do." Visitors from the Divisions found Miss Robertson knew exactly how to set them on the correct road when they visited any of the London offices.

Miss Robertson was married in September. Her husband, a chemist, has been with I.C.I. since 1944 and served for six years with I.C.I. (China). He is now working for Dyestuffs Division in France, where the Taylors will settle for the time being.

ALKALI DIVISION

First-aiders succeed at Airfield Competition

Competing against thirty-five teams from all over the country, an Alkali Division first aid team swept the board at the eleventh annual first aid and diagnosis competition organised by the Casualties Union in October. The Alkali team won all three premier awards: the Buxton Trophy, the First Aid Trophy, and the Diagnosis Trophy. It was the first time in the history of the competition that one team had achieved this.

The Casualties Union is the organisation which provides the gruesomely realistic "casualties" for the I.C.I. annual inter-Division first aid competition and for most such events



The Alkali first aid team which swept the board at the Casualties Union competition. Standing: W. C. Egerton, W. C. Raby, W. F. Griffin, S. Cornwell. Seated: G. H. Gandy, F. Grocott, W. R. Hall.

throughout Britain. Their annual competition is held at a place where casualties in real life can be expected to occur, such as a dockyard or a railway station. This year Hendon R.A.F. station was chosen, and the guest of honour was Air Marshal Sir James Kilpatrick, K.B.E., C.B., M.B., Q.H.P., director-general of the R.A.F. medical services.

Of the Alkali team, four members came from Winnington and Wallerscote Works, one each from Silvertown and Fleetwood Works, and the reserve from Paper Goods Manufacturing Co., Sutton. Last year an Alkali team came fourth in the competition.

A Winnington Magician

"To practise magic and concealed arts" and to watch "some demonstrations magical"—that was the intent of Mr. Charles

Scott, of the Alkali Division Information Service, when he travelled up to Edinburgh in mid-September to attend the silver jubilee convention of the British Ring of the International Brotherhood of Magicians. He combined the joys of magic with those of camping—"tenting it" outside Edinburgh, so that it was possible for himself and his wife to escape occasionally from the continuous round of high-pressure magic that is the lot of those attending the convention.

With his belief that magic is essentially an intimate art, Mr. Scott considered the highlights of the convention to be, as always, the displays of close-up magic and sleight of hand. While press headlines told the public of the Ring secretary's promise to burn his wife alive, many of the delegates practised this more intimate magic. The most outstanding of these sessions, in the opinion of Mr. and Mrs. Scott, was after the official ending of the convention, when for five hours a High Court judge, a Belgian wine importer and a circus pickpocket vied with each other to produce magic of the hand and mind that was no longer just conjuring, but pure magic.

Mr. Scott started his magic at the tender age of 10 with a small pack of patience cards and gave his first public performance at the age of 13 before an audience of doctors and university men, which taught him, he says, the fundamental precept that the more intelligent they are, the easier it is to deceive them.

Children's Summer Camp

In late summer a party of children from the Northwich district spent a week's holiday in camp as the guests of the staff and payroll workers of the Division who contribute to the Children of the Unemployed (Assistance) Fund. (Since it was first formed the fund has been extended to benefit orphans and fatherless children as well.)

The camp, the second to be held since the war, was at Clawdd Newydd, five miles from Ruthin in North Wales, on a site belonging to the Merseyside Holiday Camps for Children, a non-profit-making body founded by Arthur H. Lee in 1909.



Sports day at the Alkali Division camp for Northwich children



Mr. Charles Scott

The chalets and tents look down from a plateau 1400 ft. above sea level on a panorama of the Welsh countryside, and the camp has its own indoor swimming bath, swings and playing fields, all of which were constantly in use and enjoyed by the children.

Alkali Division volunteers were in charge of the children, and a well-organised programme of entertainment was soon in full swing. Outside events included football and cricket matches, daily spells of P.T., a treasure hunt, country walks, and athletic sports. A highlight was the day spent at Prestatyn and Rhyl on the North Wales coast, where the children were able to play on the beach and paddle, and spend their 3s. 6d. pocket money on the Rhyl pleasure beach. Inside the camp's pavilion, too, there was never a dull moment. Film shows, community hymn-singing on the Sunday evening, table-tennis tournaments, a fancy dress parade, and a concert on the last evening were all held inside its accommodating walls.

The children were returned to their various homes and schools by motor-coach with many happy memories of their camping holiday.

Heading the hard-working helpers were Miss Muriel Haward, the Division's women's welfare supervisor, and Mr. T. Holland, the Division youth supervisor.

BILLINGHAM DIVISION

'Drikold' Suit keeps Pilot Cooler

Before Lieut.-Comdr. Mike Lithgow, Vickers-Armstrong's chief test pilot, took the record-breaking Supermarine Swift to Libya it was known that problems would arise for the pilot and timekeepers from the very high temperatures in the desert. In an attempt to solve these problems Vickers-Armstrongs made use of 'Drikold' produced at Billingham as a refrigerant.

Mike Lithgow in his cockpit had to face the combined effect of the sun's heat—150° in the sun, more than 10° higher in the shade than the 93° reached in England on one day in August this year—and the heat produced by the passage of the plane through the air at high speed.

In an attempt to give him a more comfortable flight he was provided with an experimental flying suit which was connected by a tube with an ice-box containing 'Drikold.' While the plane was in flight a stream of air was forced through the ice-box and fed to the suit, through which it was distributed by means of ducts.

During practice runs it was found that the supply of air was inadequately regulated, and with the temperature in the cockpit up to 180° Lithgow described his ordeal as being "like that of the Sunday joint in the oven."

Adjustments were made to the air flow and reports indicate that for the record flight (since bettered in the U.S.A.) the system was working more satisfactorily.

Refrigeration was also used for the delicate instruments for timing the record, but so intense was the desert heat that despite this precaution the instruments were so affected that for some runs new times could not be claimed.

Trimpell Fire-fighters' Successful Year

The Fire Department of Trimpell Ltd., Heysham, has been in the news this year with its victories in competitive fire-fighting. After winning all five events at the North Lancashire branch competition of the Industrial Fire Protection Association of Great Britain they have recently gone on to win two

first prizes and one third at the national finals held at the London Fire Brigade headquarters, Lambeth.



Fire-fighters of Trimpell Ltd. who distinguished themselves at a London competition. Standing: J. Wilson, P. McMaster, M. Forrester, H. Barnes, L. Harper. Seated: A. Hattersley (chief fire officer), H. E. F. Pracy (general manager, Trimpell Ltd.), A. Buckley (section leader).

The Trimpell team also won the Billingham inter-works competition in September. It was the first time a team had been entered from Heysham, and the average age of its members was the youngest of the fifteen teams competing.

Woman Journalist wins Bouquet from Miners

Down the anhydrite mine recently went a big bunch of dahlias. "To the young lady from the C.O. of I.," said the note pinned to the bouquet; "welcome to the anhydrite mine. Our compliments to beauty with something beautiful amidst these strange surroundings—The Miners."



Mr. Jock Owen, Mr. Mike Scott, Mr. Patrick Deigan and Mr. Walter Hind with Miss Helen Dunt in the anhydrite mine

"The young lady from the C.O. of I." was Miss Helen Dunt of the government's Central Office of Information, and her visit to the mine was for the purpose of collecting information for a photographic feature entitled "The World's Largest Anhydrite Mine." This is being released through United Kingdom information posts at about 120 places overseas and may also appear in this country.

Miss Dunt has been down coal and tin mines before, but found the anhydrite mine—apart from the unexpected pleasure of the bouquet—very much more pleasant than either. Her interest in the mine was all the greater because her late father was an I.C.I. man.

Billingham has had a number of interesting, and interested, visitors lately. The Mayor and Mayoress of Stockton toured the factory on 3rd September. A few days later two Swiss journalists arrived to collect material for articles on I.C.I. generally and on 'Terylene' which will appear in the *Neue Zürche Zeitung*—a newspaper which in Switzerland has the standing of *The Times* in Britain. From the B.B.C. during the same week came Mrs. Ruth Moxon; she toured the factory and made on-the-spot recordings in Hebrew which were broadcast on the B.B.C. Hebrew Service.

Synthonia has Three International Shots

With the selection of Mr. George Hartley, of Engineering Workshops, for the team which defeated Scotland by one point in a recent England-Scotland international shoot at Glasgow, the Synthonia Miniature Rifle Section now has three internationals among its 140 members.



Mr. N. Raper

A turner in the Engineering Works machine shop, Mr. Hartley is the present section champion and earlier this summer won the Durham County individual championship. He was one of the eight members of the section who took part in this year's meeting at Bisley, and his selection for the international shoot at Glasgow followed.



Mr. N. Ackroyd

He scored an individual success at Glasgow by winning the coveted Nestlé Trophy with 398 out of a possible 400.

He also won a silver medal by tying for first place in an aggregate competition in which he and another competitor each scored 1576 points out of a possible 1600.

Mr. Raper is a founder mem-

ber of the section who can remember when he and other Billingham enthusiasts used to meet twenty-five years ago in a Stockton drill hall with one rifle among them. He was winner of the Durham county championship in 1935, and the same year he set up a new British record at Bisley with maximum points in the Aster Cup contest.

Secretary of the English international team at Bisley in 1937, he became Cheshire County champion after being transferred to Runcorn in 1939 and has represented Durham County since returning to Cassel Works last year.



Mr. G. Hartley, one of Synthonia Club's three international shots

Mr. Ackroyd has been a member of the Scottish international team each year since 1946, although he did not shoot in the recent contest at Glasgow. He was also a member of the British teams which met the U.S.A. and Dominion teams in 1947, 1948 and 1951. Mr. Ackroyd also shot for Britain in last year's Wakefield Trophy competition with Sweden.

DYESTUFFS DIVISION

Girls in the News

Three girls from the Division's factories have won awards lately in three very different leisure activities.

Miss Helen Shirra of Grangemouth Works Canteen Section was persuaded to enter her two-year-old brindle cairn terrier Koolan of Kingarry for the Scottish Kennel Club show held at Edinburgh. Against strong entries from professional breeders from all over the country Koolan won two third prizes in the novice and maiden classes for dogs. Now Miss Shirra has followed up her successes by entering her dog in the Cairn Terrier Club championship show in Glasgow and the Falkirk and district show.

Mrs. Betty Adamson, a laboratory assistant in the Grangemouth analytical department, was the reluctant winner of a beauty contest at an Ayr holiday camp—reluctant because she entered reluctantly and, having won, was not sure whether to be pleased or not. Mrs. Adamson and her husband were on holiday at the camp when the organisers of the Beauty Queen contest found they had only a dozen entries. A number of bystanders, Mrs. Adamson among them, were persuaded to

join in, dressed as they were. The competitors in bathing suits, one might have thought, had an unfair advantage, and no one was more surprised than Mrs. Adamson when she was declared winner and beauty queen of the camp.

A typist at Huddersfield Works, Miss Mary Firth, has won an award from the International Dancing Masters Association; there were other winners from the same school of dancing as herself, but Miss Firth was the only one to be highly commended. She has already won prizes for her dancing, and holds her bronze, silver and gold medals, with bars for each, and a silver statuette. Earlier this year she was made Queen of the Works Ball, and at the children's gala she presented the prizes for the sports events.



Miss Mary Firth

GENERAL CHEMICALS DIVISION

Prizes for Pansies and Violas

Competing against professional and amateur growers from this country and overseas, Mr. John Talbot of Castner-Kellner main workshops has won some outstanding successes at northern flower shows.

Mr. Talbot specialises in pansies and violas, and with these he took at the Southport flower show nine first prizes, four seconds, one third, and Dobbie's special prize for the most



Mr. John Talbot among the prizewinning pansies and violas in his garden

points in the amateur section. Of these prizes, one first and one second were won in the open class competition.

Again at the Manchester and District Pansy and Viola Society's show Mr. Talbot scored nine firsts, as well as one second and the cup for the most points scored at the society's three shows this year.

Mr. Talbot is a born gardener, who first came into the public eye with his exhibitions of vegetables at local shows. In 1936 he transferred his affection to begonias, and with these too he had some successes.

Pansies and violas now claim all his time and talent, and he has actually evolved a new variety of each. A new pansy, which he calls the Jean Talbot after his daughter, has cream-edged lower petals with dark purple blotches on the side and bottom, and top petals of cream with purple spots. His Arthur Talbot viola, named after his father, is a self-coloured dark purple; this flower is being released to the public in the near future.

METALS DIVISION

Works Doctor Honoured by St. John Organisation

A high award of the St. John Ambulance Organisation for the works medical officer of the Marston Excelsior factory, Dr. J. W. Silversides, J.P., has been announced in the *London Gazette*. Dr. Silversides is made an Officer Brother of the Order of St. John of Jerusalem in recognition of his work in furtherance of first aid and for his services at lectures and examinations.

Dr. Silversides has been associated with the Leeds centre of the Association since 1929 and is now its president. He was made an honorary life member in 1942.

NOBEL DIVISION

A Legal Poaching Job

At Loch Fhearna, 1200 ft. up in the hills above Achnasheen in Ross and Cromarty, fifty-five wooden floats rode placidly on the surface of the water. On the shores of the loch spectators had gathered, as if for a fishing competition.

They were soon to see some fishing of a kind expressly forbidden by Act of Parliament. A great explosion shook the loch, and over the entire surface the water was thrown up to a height of 150 ft. as 55 charges of between 10 and 60 lb. each were detonated.

Mr. Sam Davidson (Research Dept.) and Mr. Bill Rankin (Technical Service Dept.) had laid the charges at the request of the North of Scotland Hydro-Electric Board. They were armed with a special dispensation from the Salmon Poaching Act (1952), for their object was to kill fish—which is not allowed to be done with explosive even if (as in this case) salmon are not concerned.

As well as producing electricity the Board aims to improve salmon and trout fisheries in the waters it administers, and it was decided to use the river Bran as a spawning ground for salmon to stock the Conon basin. Pike and perch interfered with this plan, and the Board decided they would have to go.

On Loch Luichart experts had spent two years catching 18,000 pike, 28,000 perch and 1000 eels. Their breeding ground was traced to Loch Fhearna, and here a more drastic operation was called for.



Loch Fhearna erupts as charges to kill pike and perch are detonated

After the explosion it was impossible to tell by eye how many fish had been killed, although Mr. Davidson and Mr. Rankin were confident that none could have survived the detonation waves. They were proved right a fortnight later, when the Board's fisheries adviser reported that there was no sign of living perch or pike in the loch.

Scouts see Europe

In charge of a party of 30 Scouts and 10 Scouters from Ayrshire who spent fifteen days touring the Continent recently was Mr. J. Gall-Smith, a member of the Division headquarters engineering department.

Mr. Gall-Smith, who is District Commissioner for N.W. Ayrshire, had three Ardeer men in his party. They were Mr. John Edmonds, assistant commissioner and group scoutmaster for Stevenston, who works in the electrical shop; Mr. R. Shedden, butcher in Ardeer catering department, who is district scoutmaster for Ardrossan; and the scoutmaster of Stevenston, Mr. D. Dawson, a joiner at Ardeer. Several of the scouts work at Ardeer or have fathers or mothers working there.



Off to see Europe: Ayrshire scouts with their leader (in the doorway) Mr. J. Gall-Smith

During their tour the party visited Dunkirk, Antwerp, Brussels, Luxembourg, Basle, Zürich, Kandersteg, Dijon and Paris. Wherever they went they were welcomed by the scouts of the district and shown the local sights and beauty spots. Among the highlights of the tour were a snowfight 7000 ft. up in the Alps, the unexpected presentation to one scout of a watch by a Swiss who wished to repay the kindness he had received in Edinburgh, and a visit to the Luxembourg radio studio from which Lord Haw-Haw used to broadcast. This was put to better use by Peter Murray, who broadcast a message to people in Scotland.

Good Shooting

At the Scottish National Small-bore Rifle Association's meeting the *Daily Telegraph* challenge cup went to one of seven Ardeer riflemen competing. He was Mr. W. Young, a physicist. He scored possibles over 25, 50 and 100 yards, sharing the lead with two other marksmen; but when the cards were rejudged he was declared winner with seven centre bulls out of 10 on the 100 yards target.



Two crack shots of Ardeer Recreation Club: Mr. W. Young (right), an Ardeer physicist, and his father, a foreman in the acids plant

The Youngs are known at Ardeer Recreation Club as a shooting family. For many years Mr. W. Young's father, a foreman in the acids plant, had the reputation as the club's best shot, and the saying that his son takes after him is only now having to be revised. At the Scottish meeting Mr. Young senior did some good work too, sharing an average through the ranges of 98.5 with Mr. D. M. Fullarton.

New I.C.I. Fellowships at Glasgow

Two new research fellowships, the first of their kind in Britain, have recently been endowed by Nobel Division at Glasgow University. They will provide the opportunity for research in industrial relations, and are thus a new departure also for I.C.I., which already provides funds for 92 fellowships in technological subjects.

PAINTS DIVISION

Success for Stowmarket in Fire Contest

Stowmarket Factory Fire Brigade achieved a notable success on 5th September, when the 1953 finals of the competitions organised by the Industrial Fire Protection Association of Great Britain were held at the headquarters of the London Fire Brigade.

A team from Stowmarket Factory Fire Brigade represented the Ipswich branch of the Association by virtue of winning the



Victorious Stowmarket fire brigade: E. E. J. Nunn, A. C. Malcolm, Chief Officer D. W. J. Richardson, J. W. Sutton, E. A. Moyes

area competition earlier in the year for the four-man light trailer pump drill. The team, consisting of Messrs. J. W. Sutton, E. E. J. Nunn, E. A. Moyes, and A. C. Malcolm, succeeded in tying for first place with Albright and Wilson, and thus became joint holders of the Coventry Trophy and the Southampton Trophy for the first and second places.

Three of the Stowmarket firemen are in their first year of competition work, which makes the team's success all the more outstanding. The Stowmarket Factory brigade is the only team in the country to have won this competition on more than one occasion. They previously held the Coventry Trophy in 1950.

SALT DIVISION

Woman's Half-century of Service

Miss Sarah Davenport has retired from the Engineering Department's printing room with what is believed to be a record—subject to confirmation, as they say of air speed records—of long service for a woman employee in the Division. She joined the Salt Union in 1901, and thus has 52 years to her credit.

Miss Davenport was 13 years old when she joined the Salt Union to work in the packing room as a packer and bag-stitcher. In 1916 she was transferred to the printing room of the Engineering Department, where she remained until her retirement.



Miss Sarah Davenport

During her 37 years of engineering printing Miss Davenport has seen many changes. In the early days the printing was done by a printing frame which depended on the use of sunlight, and not even Miss Davenport could provide that unfailingly when it was needed. Later the frame was replaced by a dyeline machine, which remained in use until recently.

'TERYLENE' COUNCIL

Australian Cricketers wear 'Terylene'

When they sailed for home the Australian cricketers did not have in their luggage quite what they had hoped for. But each member of the team did have, instead, a nylon and a 'Terylene'



Richie Benaud, the Australian cricketer, in his 'Terylene' shirt

shirt, presented to them by a British shirt manufacturer who hoped thus to ease their laundering problems on the voyage home.

In the picture above Richie Benaud is seen wearing his 'Terylene' shirt.

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OUR NEXT ISSUE

Scarcely more than 300 yards from I.C. House lies one of the most treasured of the nation's possessions. This is the wonderful old Bible of Lambeth Palace. Its manuscript was written and illuminated by Canterbury monks in the twelfth century—about a hundred years after William the Conqueror—and is in a remarkable state of preservation. We are printing several colour photographs of the bible's illuminations, together with an account of its history by the Lambeth Palace librarian.

Our lead is an article on the ever-important productivity question. With one-third of its workers now paid by results under work study or similar schemes, I.C.I. is increasingly recognised as in the forefront of the drive for higher productivity. This progress has been achieved very largely by the unremitting work of Mr. Russell Currie, head of Work Study Department.

Lastly are two articles in lighter vein—a description of a day's duck-shooting on the Mersey estuary by a payroll worker in General Chemicals Division and a short story contributed from the Lightning Fastener works at Swansea.

Times have Changed

By F. S. Binnie (I.C.I. (India))

(Illustrated by Winslade)

TWENTY-SEVEN years ago I joined for a brief period a large mercantile firm in South India. It was a flourishing concern, with interests in cotton, wool, jute and shipping, and employed a large number of British assistants. The office hours were 10 a.m. to 5 p.m., with no great pressure applied. If one arrived at the office with a sore head, it was quite permissible to instruct a servant known as "the cooler" to produce a large brandy and ginger ale with which to revive the spirits, while if anyone was ever unfortunate enough to work after five o'clock, then whiskys and sodas were on the house. I can see no evidence of this kind of treatment nowadays.

Another thing which has completely disappeared from the scene was the highly important social custom of dropping cards. In those days a young bachelor had little chance of breaking into fashionable circles unless he undertook this task at the beginning of each cold weather.

Before the first world war the only permissible dress for the occasion was a tail coat and top hat, but in my day a dark lounge suit was the accepted uniform. This operation was known as "poodle-faking," and the first ports of call were those residences which contained a young unmarried daughter or niece out for the winter months, universally referred to as "the fishing fleet." Provided the young men of the town cast their net over a sufficiently wide field and did not get too noticeably intoxicated at any function, they could expect to dine out



handsomely at least twice a week for a period of four months or so. They would attend all the dances in cheerful parties and could expect an invitation to tennis almost every Saturday afternoon.

Generally speaking, the rules of this rigid social custom were strictly enforced, and young men knew that they could expect no invitation from that family on which they did not drop their little white pasteboards. "The fishing fleet" had its own code of behaviour too, laid down by stern parents. The most annoying custom of all was that its members were forbidden to dance with a man who was not in the same party, and as the instruction carried with it the threat of being sent

back to England at the first sign of any infringement, it was most strictly obeyed. Things are different now.

Twenty-seven years ago cinemas were small, hot and uncomfortable, and therefore not much in vogue. Douglas Fairbanks drew the crowds, but as far as I can remember, that is about all there was to it. Considerable activity in the amateur dramatic field was therefore very much in evidence, and young men with no talent but out for a bit of fun could generally find employment in a mob scene.

I remember once eight of us were hired to take the part of an uncouth rabble in a dramatic play about the French Revolution. We were only on the stage for very brief periods disguised in long wigs and dirty smocks, and the extent of the acting was to shake our fists at some of the leading characters and mutter angrily to each other. This

suited us admirably, and as we had a well-stocked bar in the wings our stimulating performance in the final act drew much applause from the audience.

But there was one scene which I will never forget. The stage was empty but for the principal actor, who stood silently looking out of the window from which he was about to see his best friend guillotined. The rabble were sitting on a table in the wings, each with a well-charged glass in his hand, repeating continuously the words "soda water bottle." We began softly, gradually growing louder and louder until, at a sign from the stage manager, we ended suddenly with one fearful shriek.

The silence which followed, and which marked the falling of the knife, almost gave several members of the mob convulsions. But when the leading actor, after speaking the dramatic lines which finished the scene, came into the wings with tears of emotion streaming down his face, we could contain ourselves no longer and dissolved into helpless laughter. All of which was regarded as being in very bad taste. I do not suppose the small bit players in amateur dramatic societies take a case of whisky into the wings with them now.

Young people coming to India at the present time have no idea of the splendid functions which took place years ago at Government House and which were an important and diverting part of the social life of the European community.

During the cold weather, invitations were issued to a number of informal dances, but the highlight of the season was the state ball. At this magnificent affair all the guests were presented to the Governor and his lady, who stood on a dais at one end of the state ballroom, immediately in front of heavily ornate thrones bearing the royal coat of arms: they were surrounded by their personal staff in full dress uniform and with decorations. The whole glittering scene worthily upheld the dignity of the Crown, and to eyes unaccustomed to such a spectacle it was indeed impressive.

As each name was solemnly announced the individuals concerned stepped forward with all the dignity they could muster, bowed or curtsied according to their sex, and moved off to the left of the floor. This took a considerable amount of time, and there was also the important question of precedence to be considered.

As far as naval, military and civil officers were concerned, this question offered no problems that could not easily be solved by reference to some book of regulations, but how the heads of the various mercantile establishments sorted themselves out I never properly understood. But for the juniors it was a different matter. This was an occasion for great politeness and the utmost condescension, a style of behaviour never much in evidence elsewhere. Trailing along at the end of the queue were immaculately dressed young men bowing politely to each

other and saying "After you, my dear fellow."

When the presentation was over, and with cuffs re-shot and waistcoats pulled down, there came as No. 1 on the programme the State Lancers, a dance reserved for those in high station. The Governor partnered the Bishop's wife, and so on down the scale to chief secretaries of the high-born I.C.S. Junior officers and those in commerce politely stood and watched. Immediately thereafter the doors of the supper rooms were thrown open, and the music of champagne corks gaily popping did not escape the notice of all those, like myself, of modest rank.

Everything was lavish to a degree. The supper tables took their weight of cold hams, turkey, tongues, sides of beef, enormous saddles of mutton, Scotch salmon, pheasant and partridge, while huge bowls of salad and mountains of jellies, trifles and other temptations for the sweet tooth were there in abundance. Scenes like this disappeared from the European way of life in India many years ago, and will never return.

A large number of the British community were members of the Auxiliary Force, the equivalent so to speak of the Territorials at home. I suppose we were reasonably smart, but we never took ourselves too seriously, and our general knowledge of military affairs was somewhat sketchy, to say the least of it. Unexpected situations always took us by surprise.

Many years ago the senior military officer of the station held the rank of Colonel Commandant, a title or nomenclature which no longer exists. The particular incumbent of the post at the time of which I am writing was a tall, extremely handsome and immaculate personage in whose drawing room were to be seen signed photographs of the Royal Family and many ex-crowned heads of Europe besides. To be invited to a private dance at his house was regarded as a great honour. This gentleman took a sincere interest in the officers of the local auxiliary force and



The Governor partnered the Bishop's wife . . . and so on down the scale

would often turn up on field days to inspect us, mounted on a magnificent charger.

I remember one Sunday morning we were on the top of a small hill having a lesson on map-reading from the senior major, who knew remarkably little about the subject himself, when up galloped the well-known figure and enquired what was going on. He surveyed in silence for several minutes the vast plain which lay before him and then, half turning in the saddle, said "Mr. Wills, please."

This sudden command nearly startled my good friend George out of his wits, but being anxious to please, although not much of a military figure, he stepped forward, gave the colonel commandant a charming smile, and replied "Sir!" His failure to salute passed without comment, although he heard about it later, and at some length, from the senior major.

"Mr. Wills," said the figure on horseback, "take a good look at what you see before you and let me have your appreciation of it."

George placed his left hand on his hip in a most unmilitary fashion and looked down at the scene, not having the slightest idea what was expected of him. After a few minutes' silence the voice of authority said "Well, Mr. Wills?" George turned towards him, hand still gracefully on hip, and replied "Lovely hunting country, sir!"

Some senior officers might have been vexed at receiving such a reply, but if the colonel commandant had any feelings in that direction he did not show them.

"No, no, Mr. Wills, I am not thinking of hunting. I want you to tell me what you think of the ground from the point of view of deploying troops."

"Oh, that!" said George. "Now, let me see . . ."

The Auxiliary Force has gone, and its disappearance has robbed young men of the opportunity, such as was offered to George, for displaying their talents in military affairs and their resourcefulness in handling an unexpected and critical situation.

